PLESHCHEYEV, I.S.

Tectonic pattern and the prospects for finding gas and oil in northeastern Ustyurt. Neftegaz. geol. i geofiz. no.4:28-30 '64. (MIRA 17:6)

1. Aerogeologicheskaya ekspeditsiya Vsesoyuznogo aerogeologicheskogo tresta Ministerstva geologii i okhrany nedr SSSR.

On Some Problems of Tectonics of the Eastern Part of Karagiye Depression

meets an obstacle, under the pressure of the overlying layers the lower layers then form folds. Such as those observed in the Karagiye depression. The authors disagree with the following geologists that worked in this region: V.V. Bayarunas, N.I. Andrusov, V.Ye. Yegorova, V.V. Belousov, V.N. Vinyukov, and A.P. Pavlov. There are 2 cross-sections, 1 map and 6 Soviet references.

Card 2/2

AUTHORS: Pleshcheyev, I. G. and Volchegurskiy, I. ...

TITLE: On Some Problems of Tectonics of the Eastern Part of Yarakgiye Depression (O nekotorykh voprosakh tektoniki vostochnoy chasti vpadiny Karagiye)

PERIODICAL: Byulleten' Moskovskogo obshchestva ispytateley prirody, Otdel geologicheskiy, 1958, Vol 33, Nr 1, pp 29-35 (USSR)

ABSTRACT: The authors studied the occurrence of small folds of white marle, of the Upper Eocene epoch, between the layers of the Oligocenic argyles in the Karagiye depression of the Mangyshlak peninsula on the Caspian Sea. Some of the geologists considered these folds as a manifestation of the Alpine tectogenesis. The detailed investigation of the occurrence of these folds by the authors showed that their formation was connected with the land-sliding processes which occurred in the Quaternary period. The authors cite similar fold formation resulting in land-sliding in various places along the Volga river. The formation of folds occurs when the advanced edge of lower layers of the sliding earth mass

Card 1/2

BRONEVOI, V.A.; KITYUKHIN, I.G.; MERKLIN, R.L.; [illegible]

Stratigraphy of Oligocene sediments in the southwestern part of the Chagrayskoye Plateau. Biul. MOIP. Otd.geol. 39 no.5:90-100 S-O '64. (MIRA 18:2)

KIRYUKHIN, L.G.; PLESHCHEYEV, I.S.

Helvetian sediments in northern Ustyurt. Biul. MOIP. Otd. geol. 39 no.3:57-61 My-Je '64. (MIRA 17:12)

GARETSKIY, R.G.; KIRYUKHIN, L.G.; PLESHCHEYEV, I.S.

Tectonics, and oil and gas potentials of the northern Ustyurt. Neftegaz. geol. i geofiz. no.4:10-15 '65. (MIRA 18:7)

1. Vsesoyuznyy aerogeologicheskiy trest Ministerstva geologii i okhrany nedr SSSR.

PLESHCHEVENKO, A.G., zootekhnik

Simple improvement. Zhivotnovodstvo 21 no.11:80 N '59 (MIRA 13:3)

1. Severo-Osetinskaya stantsiya iskusstvennogo osemeneniya sel'-skokhozyaystvennykh zhivotnykh.
(Veterinary instruments and apparatus)

sotropy constant, which also should lead to a change in magnetic structure. Hence it may be assumed that such an alloy must display a marked TMH. To verify this assumption cylindrical (length 2 cm, diameter 0.45 cm) specimens of Co-Pt alloy of equiatomic composition were subjected to various types of heat treatment (quenching from 1000°C at 1.7 deg/sec, with or without tempering at 600 or 700°C for from 20 min to 3.5 hr). Observations of the course of magnetization in the presence of cyclic changes in temperature from 20 to 320°C and from 20 to 520°C (above Curie point) were performed by the magnetometric method, with the specimens placed in magnetic fields of 20, 100, 200, 400 and 800 oe. All the specimens displayed high values of TMH, as illustrated, e.g. by Fig. 1. The markedly inhomogeneous magnetic structure in the high-coercivity Co-Pt alloy is present because the ordered-phase particles with a high anisotropy constant K are oriented in the easy directions. At the same time in the disordered phase with low K the spins will deviate from the easy directions and be aligned so as to reduce the density of magnetic charges within the ferromagnetic. With variation in temperature, due to the strong temperature dependence of the ordered-phase K, the type of magnetic structure is altered. If this alteration occurs in the presence of an external field, processes leading to the growth of resultant magnetization will chiefly occur. These processes may be reversible or irreversible; it is the latter that lead to TMH. Orig. art. has: 1 table, 4 figures.

SUB CODE: 11, 20/ SUBM DATE: 22Feb65/ ORIG REF: 005/ OTH REF: 001

Card 3/3 vmb

L 15185-66
ACC NR: AP6002672

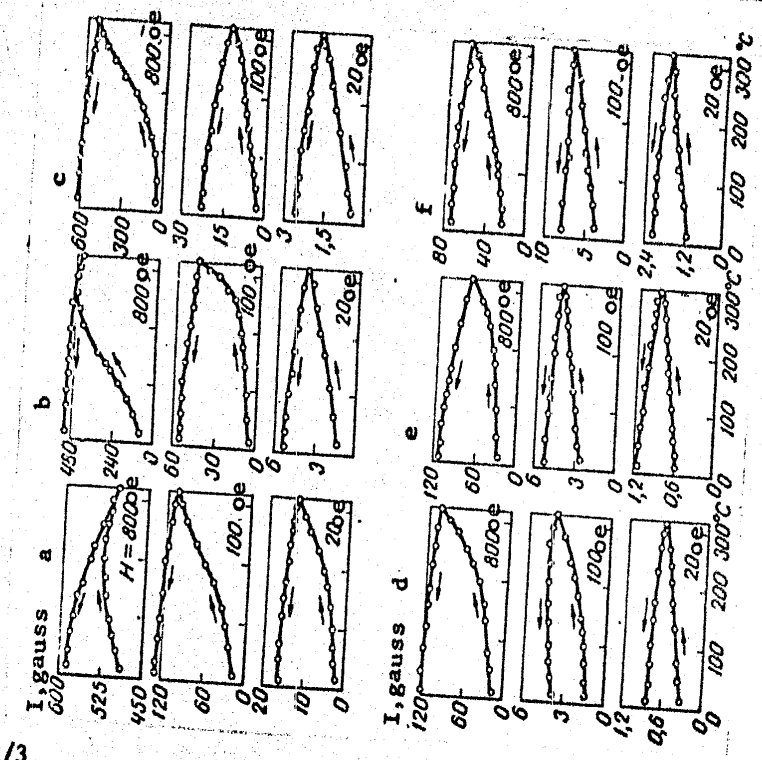


Fig. 1. Temperature dependence of the magnetization of the Co-Pt alloy in various structural states in the presence of the cyclic variation in temperature 20 → 320 → 20°C

Card 2/3

L 15185-66 EWT(1)/EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) IJP(c) JD/HW/JG

ACC NR: AP6002672 SOURCE CODE: UR/0126/65/020/006/0939/0942

AUTHOR: Shur, Ya. S.; Mishin, D. D.; Dunayev, F. N.; Pleshchev, V. G.

ORG: Ural State University (Ural'skiy gosuniversitet im. A. M. Gor'kogo)

TITLE: Temperature-induced magnetic hysteresis in the high-coercivity alloy Co-Pt

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 6, 1965, 939-942

TOPIC TAGS: magnetic hysteresis, magnetic coercive force, temperature dependence, cobalt containing alloy, platinum containing alloy, magnetic structure

ABSTRACT: Cyclic variation in the temperature of a ferromagnetic present in a weak magnetic field (compared with the magnitude of the coercive force) leads to an irreversible change in the extent of its magnetization. This phenomenon is termed temperature-induced magnetic hysteresis (TMH) and is due to the attendant reorganization of domain structure. If the type of domain structure changes along with the temperature, irreversible processes of the displacement of domain walls also occur; it is this that leads to TMH. It appears that marked inhomogeneities of magnetic structure, reflecting the heterogeneity of crystalline structure, should exist in the alloy Co-Pt when in high-coercive state: roughly an half of the alloy's volume is occupied by fine-disperse particles (30-50 Å) of the ordered phase separated by the disordered phase. This alloy displays a sharp temperature dependence of the ani-

Card 1/3 UDC: 538.221.23

MARTINSON, Ye., kand.khim.nauk; FIL'CHENKOV, N., inzh.; PLESHCHENKO, Ye., inzh.

Moisture indicator for hermetically sealed refrigerating machinery.
Khol.tekh. 37 no.3:22-24 My-Je '60. (MIRA 13:7)
(Refrigeration and refrigerating machinery)

SELIVANOV, A.A.; PLESHANOVA, R.A.; SMORODINTSEV, A.A.

Testing the effectiveness of live adenovirus vaccine. II. Immunogenic properties. Acta virol. (Praha) [Eng.] 8 no.3: 271-276 My'64

1. Department of Virology, Institute of Experimental Medicine, U.S.S.R. Academy of Medical Sciences, Leningrad.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200010-6

SELIVANOV, A.A.; PLESHANOVA, R.A.; SKRYABINA, E.A.; SMORODINTSEV, A.A.

Testing the effectiveness of live adenovirus vaccine. I. Reactogenic properties. Acta virol. (Praha) [Eng.] 8 no.3:263-270 My'64.

1. Department of Virology, Institute of Experimental Medicine, U.S.S.R. Academy of Medical Sciences, Leningrad.

SELIVANOV, A. A.; SMORODINTSEV, A. A.; MOROZENKO, M. A.; MIKUTSKAYA, E. A.; PLESHANOVA, R. A.

"Data on the study of reaction- and immunity- producing properties of attenuated strains of the adenovirus and parainfluenza group."

Part II of paper presented at Symp on Applied Virology, Boca Raton, Fla., 30 Nov-2 Dec 64.

Div of Virology, Inst of Experimental Medicine, AMS USSR, Leningrad.

ALEKSANDROVA, G.I.; MIKUTSKAYA, B.A.; PIESHANOVA, R.A.; PANOVA, N.G.; SMORODINTSEV, A.A.

Reactogenic and immunogenic properties and epidemiologic effectiveness of extra attenuated vaccinal strains of the influenza virus (observations in children of preschool age). Vop. virus. 10 no.1:67-73 Ja-F '65. (MIRA 18:5)

1. Otdel virusologii Instituta eksperimental'noy meditsiny AMN SSSR, Leningrad.

POCHEJINTSEVA, T.V., FISHMANOVA, R.A.

Effect of immunization with staphylococcal a... on the condition of newborns and infants during the ... two months of life. Akush. i gin. 40 no.1:40-43 Ja-F '64.

(MIRA 17:2)

1. 2-ye akusherskoye otdeleniye (zav. - prof. ..., Khushkin) i detskoye otdeleniye Instituta akusherstva i ... (dir. - prof. M.S. Petrov-Maslakov) AMN SSSR, ...

ZAKANDIN, Viktor Il'ich; BARSKIY, A.A., red.; PLESHANOVA, M.I., red.izd-va; PARAKHINA,N.L., tekhn. red.

[Technical and economic analysis of the cost of sawmill products] Tekhniko-ekonomicheskii analiz sebestoimosti piloproduktsii. Moskva,Goslesbumizdat, 1961. 113 p. (MIRA 15:4)

(Lumbering--Costs) (Sawmills)

15-57-10-14302

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 10, p 151 (USSR)

AUTHORS: Tarasov, E. P., Pleshanov, S. S.

TITLE: The Eastern Sayan Rare-Metal Pegmatites (Vostochno-Sayanskiye redkometal'nyye pegmatity)

PERIODICAL: V sb.: Materialy soveshchaniya geol. Vost. Sibiri i Dal'n. Vostoka po metodike geol.-s"yemochn. i poisk. rabot. Chita, 1956, pp 343-346

ABSTRACT: Rare-metal mineralization (Li, Be, Sn, Nb) is found in pegmatite bodies in the bordering parts of the graben of the Eastern Sayan province, confined to proterozoic rocks and associated with Caledonian granitoidal masses. The band of pegmatite bodies extends in a northwesterly direction for 460 km. The fact that the bodies do not transect each other indicates that they formed at the same time throughout the entire field. They have a zonal structure and represent all four textural-paragenetic types in the classification of K. A. Vlasov.

Card 1/2

PLESHCHENKO, I.V.; SHPORA, L.D.

Characteristics of the rhythms of the stratification of the Naukat manifestation of cuprous sandstone. Nauch. trudy TashGU no.256 Geol. nauki no.22:120-127 '64 (MIRA 18:2)

Morphology of the outcrop of fluvial sandstones of Brown series in the southern wing of the Supetau anticline in northwestern Fergana. Ibid.:128-131

Sedimentations of the lacustrine and bog facies of the Brown series of the Lower and Middle Pliocene in the Supetau. Ibid.:132-135.

PLESHANOV, S.P.

Magnetite ore manifestation in the Irkut-Onot interfluve (Eastern Sayan). Zap.Vost.-Sib.otd.Vses.min. ob-va no.1: 120-122 '59. (MIRA 14:7)

1. Irkutskiy gorno-metallurgicheskiy institut.
(Sayan Mountains--Magnetite)

PLESHAKOV, M. G. Cand Chem Sci -- "Synthetic studies in the field of higher unsaturated acids of the aliphatic series." Mos, 1961 (Min of Health USSR) All-Union Sci Res Chem-Pharm Inst im S. Ordzhonikidze "VNIIKhFI"). (KL, 4-61, 187)

DOROSHEV, V.N., inzh.; PLESHAKOV, G.F., inzh.

Calculating the intake part of a conveyor type plant-top removing machine. Trakt. i sel'khozmash. 33 no.3:26-29 Mr '63. (MIRA 16:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennogo mashinostroyeniya.

ACC NR: AP6034906

degree symmetrical with those of the BES generator concerning the $K_1 = i/2$ straight line. Orig. art. has: 7 formulas and 1 figure. [GC]

SUB CODE: 20, 10/ SUBM DATE: 12Jan66/ ORIG REF: 002/ OTH REF: 001/

Card 2/2

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200010-6

ACC NR: AP6034906 SOURCE CODE: UR/0382/66/000/002/0054/0056

AUTHOR: Pleshanov, A. S.

ORG: none

TITLE: Crisis in magnetohydrodynamic generators

SOURCE: Magnitnaya gidrodinamika, no. 2, 1966, 54-56

TOPIC TAGS: generator, magnetohydrodynamics

ABSTRACT: It is shown that an MHD crisis, corresponding to the electrical efficiency output values of $K_* = 1$ or $K_* = 0$, can exist in conductive linear supersonic MHD regulators aside from the thermodynamic crisis corresponding to an output Mach number value of $M_* = 1$. It is shown that this can occur in the framework of a quasi- one-dimensional nonviscous and nonheat conductive approximation with magnetic Reynolds numbers of $Re_m \ll 1$ and a scalar plasma conductivity. It is also shown that the optimum MHD generator is actually a BjS generator (j being the current density) if the values of the magnetic induction B and the surface of the cross-section of the channel S (BS-generator) remain constant. It is pointed out that the characteristics of the optimum BS supersonic generator are to a certain

UDC: 538.4

Card 1/2

L 40[illegible]-66 EWT(l)/EWP(m)/T-2 IJP(c) AT

ACC NR: AP6018737 SOURCE CODE: UR/0057/66/036/006/1094/1099

AUTHOR: Pleshanov, A.S.

ORG: Power Engineering Institute im. G.M.Krzhizhanovskiy, Moscow (Energeticheskiy institut)

TITLE: Anisotropy of a low temperature plasma and optimal magnetohydrodynamic converters

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 6, 1966, 1094-1099

TOPIC TAGS: magnetohydrodynamics, magnetogasdynamics, multicomponent plasma, helium plasma, cesium plasma, anisotropic medium, magnetohydrodynamic energy converter

ABSTRACT: Ion slippage is taken into account in a treatment of the mechanics and thermodynamics of the flow of a weakly ionized plasma in a magnetic field. It is shown that as a result of ion slippage the tangent of the angle between the transverse components of the current and the effective electric field is not a monotonic function of the magnetic field strength and that Tonks' theorem does not hold. A stationary process in crossed fields is discussed in more detail in the "quasi-one-dimensional" approximation with the induced magnetic field neglected. A variational method discussed elsewhere by the author (DAN SSSR, 162, 2, 1965) is employed to show that of the three basic types of linear magnetohydrodynamic converters based on plasma anis-

Card 1/2 UDC: 533.9

Card 2/2 MLP

L 34407-66 EWT(1)/EWP(m)/EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/WW/JW/JHD/
ACC NR: AT6022656 WE/JT/GD SOURCE CODE: UR/0000/66/000/000/0141/0157

AUTHOR: Pleshanov, A. S.; Kon'kov, P. A.

ORG: none

TITLE: Nonisentropic nonequilibrium gas flow through a nozzle with allowance for friction and heat transfer

SOURCE: AN SSSR. Energeticheskiy institut. Issledovaniya po fizicheskoy gazodinamike (Studies of physical gas dynamics). Moscow, Izd-vo Nauka, 1966, 141-157

TOPIC TAGS: nozzle flow, gas flow, laval nozzle, propulsion, combustion

ABSTRACT: An analysis was made of a nonequilibrium flow of a reacting gas through a Laval nozzle with allowance for friction and heat transfer. A calculation method was developed based on gas dynamic and thermodynamic equations which includes several steps, i.e., the calculation of equilibrium and frozen flows in the entire nozzle and in the diverging and converging sections. As an example, the flow of lithium plasma through a nozzle was calculated. Orig. art. has: 93 formulas. [PV]

SUB CODE: 20/21/ SUBM DATE: 31Feb66/ ORIG REF: 011/ OTH REF: 003/ ATD PRESS: 5033

Card 1/1

L 53673-65

ACCESSION NR: AP5013749

2

conversion itself occurs uniformly both in the thermal and in the mechanical forms of the energy. A relation is derived which ensures a minimum of the final value of the entropy for a known volume of the MHDG, or, in accordance with the reciprocity principle, a minimum volume of the MHDG for a known final value of the entropy. The possible concrete realization of the optimal MHDG is briefly discussed. This report was presented by V. A. Kirillin. Orig. art. has: 15 formulas. [02]

ASSOCIATION: Energeticheskiy institut im. G. M. Krzhizhanovskogo (Power Engineering Institute)

SUBMITTED: 26Oct64 ENCL: 00 SUB CODE: NP

NO REF SOV: 004 OTHER: 003 ATD PRESS: 4013

Card 2/2

L 23673-65 EWT(1)/EWP(m)/EPA(sp)-2/EWG(r)/EWA(d)/EPR/EPA(w)-2/T-2/EWA(m)-2
Pz-6/Pa-1/Pab-10/Pu-5/Pe-4/Pi-4 IJP(c) AT

ACCESSION NR: AP5013749 UR/0020/65/162/002/0302/0305

68
66
6

AUTHOR: Pliashanov, A. S.

TITLE: Optimal magnetohydrodynamic generator 21

SOURCE: AN SSSR. Doklady, v. 162, no. 2, 1965, 302-305

TOPIC TAGS: magnetohydrodynamics, mhd generator, optimal generator

ABSTRACT: A general solution is presented for the problem of optimization of the operating conditions of a magnetohydrodynamic generator (MHDG) in a simplified one-dimensional approximation, neglecting the induced magnetic field, viscosity, and thermal conductivity. The problem reduces to the integration of one equation with four functions, which must be determined by variational calculus. The optimization of the MHDG is based on the principle of minimum of integral rate of entropy production. The generalized function chosen for optimization is a linear combination of the final value of the entropy and the volume of the MHDG. From the point of view of the reciprocity principle, this is equivalent to minimization of the volume of the MHDG at a specified power. It is then shown that in an optimal MHDG, the conversion into electric energy is carried out uniformly over the channel, while the

Card 1/2

PLESHANOV, A.S. (Moscow)

"On the equations of relaxation hydrodynamics"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan- 5 Feb 64.

L 16074-63
ACCESSION NR: AP5001946

The results of this article may be easily extended for a large number of non-equilibrium parameters. In particular in place of the second viscosity coefficient $\zeta = \tau \rho_* (c_\infty^2 - c_0^2)$ one has the generalized quantity $\zeta = \rho_* \sum \tau_n (c_\infty^2 - c_0^2)$ where τ_n is the relaxation time of the parameter f_n and the $c_{\infty n}$ is the equilibrium sound velocity for that frozen parameter, the other notations being as commonly accepted in hydrodynamics. Orig. art. has 18 formulas.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy energeticheskiy institut im. G. M. Krzhizhanovskogo (State Scientific Research Power Engineering Institute)

SUBMITTED: 02Apr64 ENCL: 00 SUB CODE: ME, PR

NO REF SOV: 004 OTHER: 002 JPRS

Card 2/2

L 16074-65 EWT(1)/EWP(m)/EWG(v)/FCS(k)/EWA(1) Pd-1/Pe-5/Pi-4 ESD(gs)/AEDC(b)/
ACCESSION NR: AP5001946 AEDC(a)/AFWL/ASD(f)-2/ S/0020/64/158/001/0074/0077
ASD(p)-3/AFETR

AUTHOR: Fleshanov, A. S. B

TITLE: Passage of a nonequilibrium gas through a critical section of a nozzle 1

SOURCE: AN SSSR Doklady, v. 158, no. 1, 1964, 74-77

TOPIC TAGS: nozzle flow, nonequilibrium gas flow, frozen flow, hydrodynamics, equilibrium gas flow, relaxation process

Abstract: Two first approximate solutions are given with respect to the small relaxation parameters for the hydrodynamics equations of flow

$$\frac{\partial \rho}{\partial t} + \operatorname{div} \rho \vec{v} = 0, \quad \rho \frac{d\vec{v}}{dt} + \nabla p = 0, \quad \frac{d\varepsilon}{dt} + p \frac{dV}{dt} = 0$$

neglecting viscosity and thermal conductivity. Taking into account the relaxation processes for a steady flow of a gas near to a critical cross-section of a nozzle for:
1) almost-equilibrium, and
2) almost non-equilibrium, "frozen".

Card 1/2

L 8805-65
ACCESSION NR: AP4044732

ENCLOSURE: 01

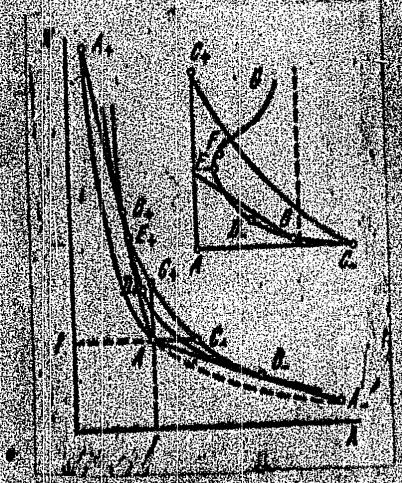
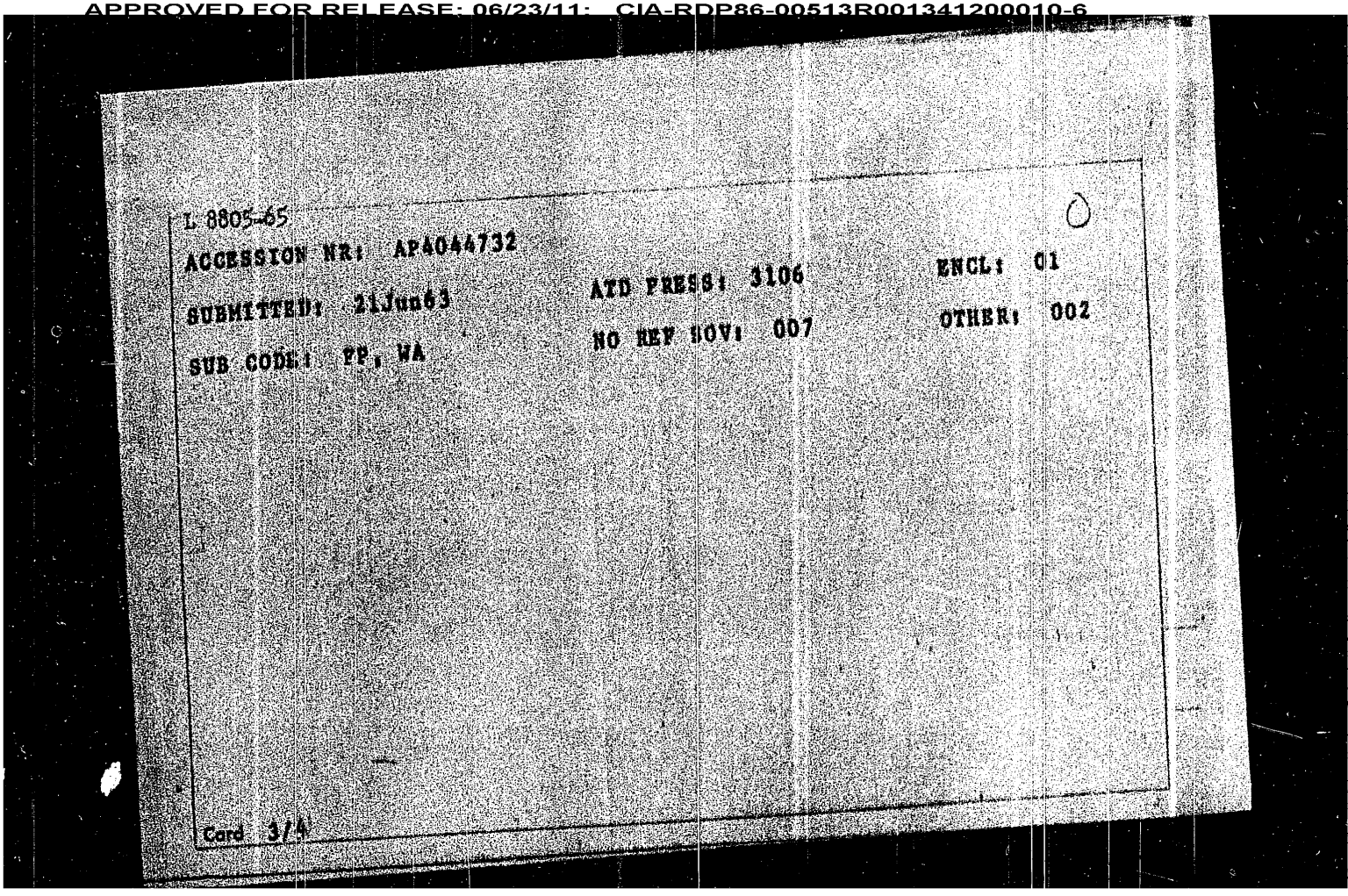


Fig. 1. Combustion process in a closed tube represented in a dimensionless graph of pressure vs. volume plane.

Card 4/4



L 8805-65

ACCESSION NR: AP4044732

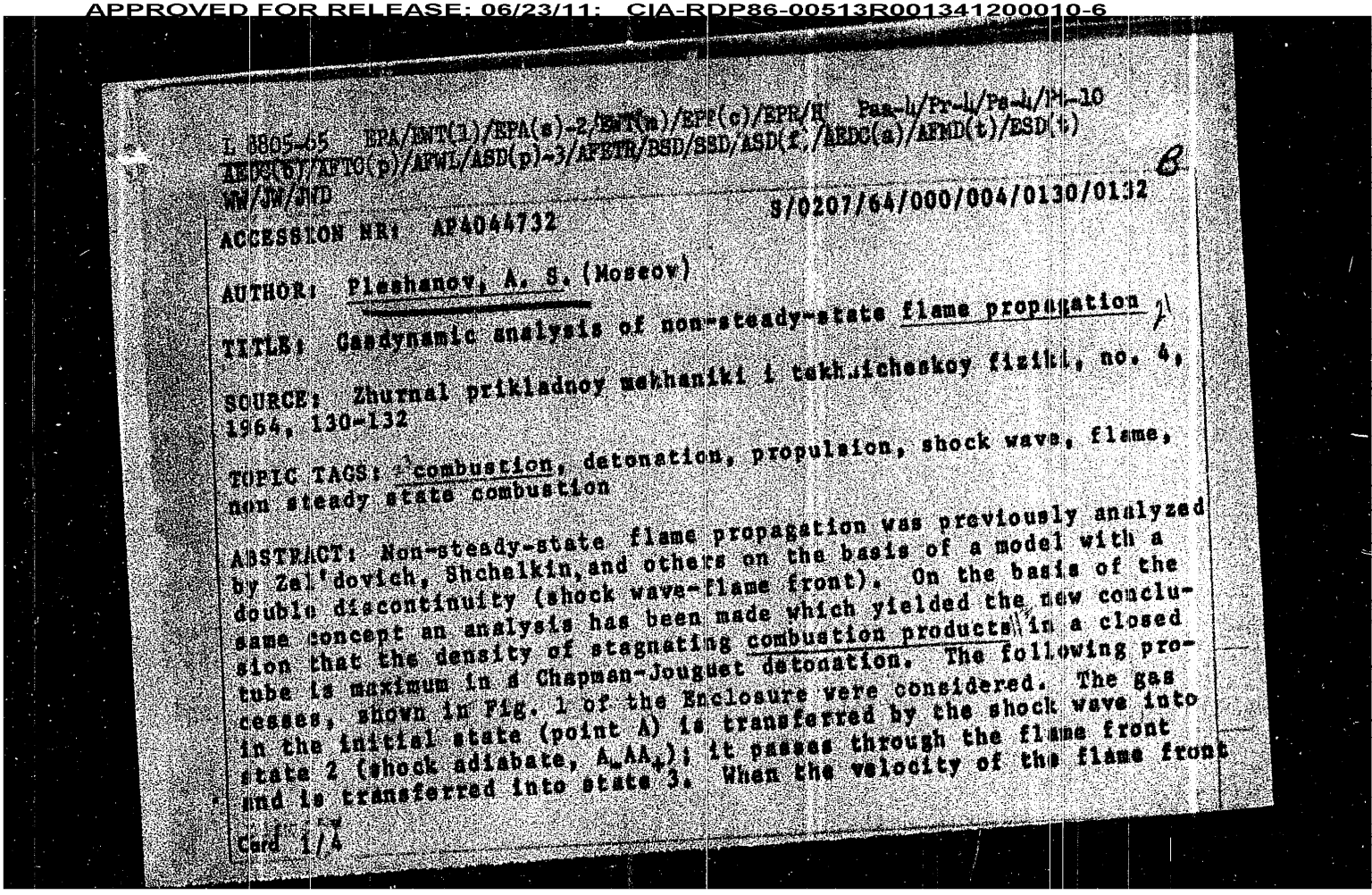
SUBMITTED: 21Jun63 ATD PRESS: 3106 ENCL: 01

SUB CODE: PP, WA NO REF SOV: 007 OTHER: 002

Card 1/4

relative to that of the combustion products (u_{22}) is smaller than the acoustic velocity in the combustion products (c_3), the gas stagnates in state 3 (curve of final state, C_B). Beginning from point B, where u_{22} equals c_3 for the first time, state 3 is realized on the Oppenheimer Q-curve (B_-BB_+) on which u_{22} equals c_3. In this case, the gas is transferred from state 3 by the rarefaction wave into state 4 (curve of final states, BFC). The adiabate ($B_-C_-C_+B_+$) for a steady-state detonation is given in the figure for comparison. The analysis showed that the vertical asymptote to the curve of final states 4 (dashed line) is located to the right of point F. Taking into account that point F is located to the left of point B (Chapman-Jouguet point), it is concluded that when the (final) state 4 is considered as $\lambda_4=f(\pi_4)$, this function has a minimum in some point E_ which does not coincide with point F. However, the difference between these points decreases rapidly with increasing thermal effect of the reaction. Thus it was proved that the density of the stagnating combustion products in a closed tube is maximum in a Chapman-Jouguet detonation. Orig. art. has: 1 figure and 10 formulas.

ASSOCIATION: none



L 8805-65 EPA/EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/EPR/T Pas-4/Pr-4/Ps-4/Pt-10
ACCESSION NR: AP4044732 S/0207/64/000/004/0130/0132

AUTHOR: Pleshanov, A. S. (Moscow)

TITLE: Gasdynamic analysis of non-steady-state flame propagation

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1964, 130-132

TOPIC TAGS: combustion, detonation, propulsion, shock wave, flame, non steady state combustion

ABSTRACT: Non-steady-state flame propagation was previously analyzed by Zel'dovich, Shchelkin, and others on the basis of a model with a double discontinuity (shock wave-flame front). On the basis of the same concept an analysis has been made which yielded the new conclusion that the density of stagnating combustion products in a closed tube is maximum in a Chapman-Jouguet detonation. The following processes, shown in Fig. 1 of the Enclosure were considered. The gas in the initial state (point A) is transferred by the shock wave into state 2 (shock adiabate, A_0A_2); it passes through the flame front and is transferred into state 3. When the velocity of the flame front

Card 1/4

L 14873-65
ACCESSION NR: AP4045094

equilibrium parameters are determined by the chemical potentials only.
Orig. art. has: 18 equations

ASSOCIATION: Gosudarstvenny*y nauchno-issledovatel'skiy energeticheskiy institut im. G. M. Krzhizhanovskogo (State Scientific-Research Power Engineering Institut)

SUBMITTED: 02Apr64 ENCL: 00

SUB CODE: TD, GP, ME NO REF SOV: 004 OTHER: 002

Card 2/2

L 11871-65 EWT(l)/EWP(m)/EWG(s)-2/EWG(v)/EPR/EPA(bb)-2/PCS(k) Pd-1/Pe-5/
Pg-4/Pw-4 AEDC(a)/APWL/ASD(f)-2/RSD/SSD/ASD(p)-3/AS(mp)-2/AFETR RM/WW

ACCESSION NR: AP4045094 S/0020/64/158/001/0074/0077

AUTHOR: Pleshanov, A. S.

TITLE: Passage of gas in a state of nonequilibrium through critical nozzle cross section

SOURCE: AN SSSR. Doklady*, v. 158, no. 1, 1964, 74-77

TOPIC TAGS: gas flow, nozzle, critical nozzle, nonequilibrated gas, hydrodynamics, thermodyanics

ABSTRACT: The paper gives the solution of hydrodynamic equations in the first two approximations with respect to small relaxation parameters for the stationary flow of a nonequilibrated gas in the vicinity of a critical nozzle, taken into consideration the relaxation processes. Two cases are considered, the near equilibrium state and the almost completely nonequilibrium ("frozen") state. The usual equations for the flow of the nonequilibrated gas are augmented by the energy equation and general thermodynamic equations, from which the balance equation for the entropy is obtained. It is assumed that the rates of change of the non-

Card 1/2

AID Nr. 988-6 12 June

FLAME FRONT STRUCTURE (USSR)

Pleshanov, A. S. Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, Mar-Apr 1963, 169-172. S/207/63/000/002/023/025

An approximate solution of the hydrodynamic equation has been obtained with chemical reactions taken into account. It is shown that under steady-state conditions the pressure before a flame front varies in proportion to M^2 (M = Mach number) and increases at Prandtl number P>1 and decreases at P<1. A pressure rise at P>1 can cause perturbations. A plot of dimensionless unsteady-state flow characteristics (temperature, pressure, density, and velocity) indicates that if the temperature distribution curve represents an increasing function, then its curvature behind the flame front is negative and the pressure variation before and behind the flame front is of opposite signs. If the temperature distribution curve has its maximum in the flame front zone, then the curvatures are positive for a considerable distance and the pressure variations before and behind the flame front are of the same sign.

[AS]

Card 1/1

PLESHANOV, A.S.

Fusing of centrally symmetrical bodies by a heat flow during entrainment of the liquid phase. Zhur. tekh. fiz. 32 no.1:106-111 Ja '62. (MIRA 15:1)

1. Energeticheskiy institut imeni G.M.Krzhizhanovskogo AN SSSR, Moskva.

(Melting) (Thermodynamics)

PREDVODITELEV, A.S., prof.; STUPOCHENKO, Ye.V.; PLESHANOV, A.S.; SAMUYLOV, Ye.V.; ROZHDESTVENSKIY, I.B.; ORLOVA, I.A., red.; POPOVA, N.S., tekhn. red.

[Tables of the thermodynamic functions of air for temperatures from 200° to 6000°K and pressures from 0.00001 to 100 atm.]Tablitsy termodinamicheskikh funktsii vozdukha; dlia temperatur ot 200°do 6000°K i davlenii ot 0,00001 do 100 atmosfer. Moskva, Akad. nauk SSSR. Vychislitel'nyi tsentr, 1962. 267 p.
(MIRA 15:12)

(Air--Thermodynamic properties)
(Physics--Tables, etc.)

PREDVODITELEV, A.S.; STUPOCHENKO, Ye.V.; ROZHDESTVENSKIY, I.B.; SAMUYLOV, Ye.V.; PLESHANOV, A.S.; ORLOVA, I.A., red.; KORKINA, A.I., tekhn. red.

[Tables of the gas dynamic and thermodynamic values of an air flow behind a direct shock wave for velocities of the incident wave up to 4500 m/sec.] Tablitsy gazodinamicheskikh i termodinamicheskikh velichin potoka vozdukha za priamym skachkom uplotneniia; dlia skorostei nabegaiushchego potoka do 4500 m/sek. Moskva, Vychislitel'nyi tsentr AN SSSR, 1962. 131 p. (MIRA 16:4)

1. Chlen-korrespondent Akademii nauk SSSR (for Predvoditlev).
(Air flow)

definition (2). In Fig. 1 the Θ_i are represented for the three cases as functions of τ. The maximum values of Θ_2 are independent of the configuration of the initial volume but the final values of Θ_1 depend on that configuration. The limiting values of the Θ_i are due to the additional degrees of freedom which the particles of an ideal gas assume when it expands into the vacuum. There are 1 figure and 1 table.

PRESENTED: April 18, 1962, by A. A. Dorodnitsyn, Academician

SUBMITTED: February 5, 1962

Fig. 1. Dependence of the dimensionless temperatures $\Theta_{1,2}$ on the time τ for initial volumes which are plane ($\nu = 1$), cylindrical ($\nu = 2$), and spherical ($\nu = 3$).

Card 4/4

Temperature distribution of free- ...

where erf $x = \frac{2}{\sqrt{\pi}} \int_0^x e^{-\eta^2} d\eta$ is the error integral and $x = 2/$. In order to obtain a closed expression for μ_1 in the cylindrical case,

$$\mu_1 = 2\int_0^1\int_0^1 \exp\left[-\frac{\rho^2+\rho_1^2}{\tau^2}\right] I_0\left(\frac{2\rho\rho_1}{\tau^2}\right)\frac{\rho_1 d\rho_1}{\tau^2}\, 2\pi\rho\, d\rho = 2\pi\,\frac{e^{-y}}{y}\sum_{k=0}^{\infty}\left[\sum_{l=k+1}^{\infty}\frac{y^l}{2^l l!}\right]^2$$

is differentiated with respect to $y = 2/\tau^2$, and with the aid of

$$\sum_{k=1}^{\infty} I_k(x) = {}^1/_2\,[e^x - I_0(x)], \qquad (D),$$

one arrives at

$$d\mu_1/dy = -[(\mu_1 - \pi) + \pi e^{-y} I_0(y)]/y. \qquad (C).$$

Integration gives

$$\mu_1 = \pi\left[1 - \int_0^y e^{-\eta} I_0(\eta)\, d\eta/y\right] \quad (\nu = 2). \qquad (5)$$

The expressions for θ_i are derived from the expressions for θ_i and from the

Card 3/4

Temperature distribution of free- ... *

$\vartheta_i = 1 + \frac{1}{3}\frac{d \ln \mu_i}{d \ln \tau}$ (2), where $\mu_i = \int \vartheta \, d\rho_i$ and i = 1,2. For the plane, cylindrical and spherical cases ($\nu = 1,2,3$) the following normalization condition is valid: $\mu_1 + \mu_2 = 1, \pi, 4\pi/3$. Since in the present case $\langle v \rangle = 0$ where v is the velocity of the gas particles, the mean temperature is defined as the mean kinetic energy of the progressive particle motion. For the plane and the spherical case

$$\mu_1 = {}^1/_2 \int_{-1}^{1} \operatorname{erf} \frac{\rho + 1}{\tau} \, d\rho = \operatorname{erf} x - \frac{1}{\sqrt{\pi} x}(1 - e^{-x^2}) \quad (\nu = 1); \tag{3}$$

$$\mu_1 = 2\pi \int_{-1}^{1} \operatorname{erf} \frac{\rho + 1}{\tau} \rho^2 \, d\rho + 2\sqrt{\pi}\,\tau \int_{-1}^{1} \exp\left[-\left(\frac{\rho + 1}{\tau}\right)^2\right] \rho \, d\rho =$$

$$= \frac{4\pi}{3}\left\{\operatorname{erf} x + \frac{1}{\sqrt{\pi} x^3}[(x^2 - 2) e^{-x^2} - (3x^2 - 2)]\right\} \quad (\nu = 3), \tag{4}$$

Card 2/4

B1573
S/020/62/146/004/004/015
B104/B102

AUTHOR: Ploshanov, A. S.

TITLE: Temperature distribution of free-molecular expansion into empty space

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 146, no. 4, 1962, 782 - 784

TEXT: A gas with constant particle density n_0 and a mass m of the particles is assumed to be in thermodynamic equilibrium at the temperature T_0. If t = 0 the gas expands from a radially symmetrical body of radius r_0 into the surrounding unbounded empty space. The dimensionless variables $\rho = r/r_0$, $\tau = t/t_0$, $\nu = n/n_0$, $\varepsilon = e/(n_0 kT_0)$, where $t_0 = r_0(m/(2kT_0))^{1/2}$, one obtains $\nu(\rho,\tau) = \pi^{-3/2}\int \nu(\rho_1,0)\exp\left[-(\rho-\rho_1)/\tau)^2\right]d\rho_1/\tau^3$. Here the integration is made from the initial volume. The dimensionless temperature $\Theta_i = \int \varepsilon d\rho_i/(\frac{3}{2}\int \nu d\rho_i) = \langle T_i\rangle/T_0$, both inside and outside this initial volume is governed by

Card 1/4

Fusion of centrally symmetric ...

to solve the well-known Stefan problem of a system of n phases. There are 1 figure and 6 references: 5 Soviet and 1 non-Soviet. The two references to English-language publications read as follows: H. G. Landau. Quart. Appl. Math., 8, 1, 1960; L. W. Ehrlich, J. Assoc. Comput. Machinery, 5, 2, 1958.

ASSOCIATION: Energeticheskiy institut im. G. M. Krzhizhanovskogo AN SSSR Moskva (Institute of Power Engineering imeni G. M. Krzhizhanovskiy AS USSR, Moscow)

SUBMITTED: March 18, 1961

distribution in (3), the required differential equation for $\chi(t)$ is found. Using the dimensionless variables $\tau = at/r_o^2$, $\eta = \chi/r_o$, and $q(t) = q(o)\varphi(\tau)$ $[\varphi(o) = 1]$, this equation assumes the form

$$\eta^{n+2}\left[\frac{d\eta}{d\tau} + \mu\varphi(\tau)\right] + (n+3)\eta^{n+1} = \tag{8}$$

$$= \mu + (n+3) - (n+1)(n+3)\mu\int_0^\tau \varphi(\tau)\eta^n d\tau.$$

where a = thermal diffusivity and $\mu = \Psi/\Phi$. It is seen that the approximation is determined by the temperature-independent μ. σ/c_p is the characteristic temperature. The nonlinear differential equation for $\chi(t)$ is solved for the special case of a plane bounded wall using the Bessel functions with imaginary argument and assuming a constant heat current $\varphi(\tau)$ = const = 1. (8) corresponds to Riccati's equation in this case. A numerical example is given. The present method can also be used

Fusion of centrally symmetric ...

$$c_p\rho\frac{\partial u}{\partial t}=\frac{1}{r^n}\frac{\partial}{\partial r}\left(\lambda r^n\frac{\partial u}{\partial r}\right)\quad(n=0,\ 1,\ 2), \tag{2}$$

inside the body. $\chi(t)$ describes the motion of the surface, $q(t)$ is the heat supply, Θ is the fusing temperature, and σ is the specific heat of fusion. The heat balance is described by

$$\int_0^{\chi(t)}\left(c_p\rho u[r,\ t]-c_p\rho u[r,\ 0]\right)r^n dr+ \tag{3}.$$

$$+\int_{\chi(t)}^{r_0}\left(c_p\rho\Theta-c_p\rho u[r,\ 0]\right)r^n dr+\int_{\chi(t)}^{r_0}\sigma\rho r^n dr=\int_0^t q(t)\,\chi^n(t)\,dt,$$

By introducing the criteria $\Phi = \sigma/c_p\Theta$ and $\Psi = \frac{q_0}{\lambda\Theta/r_0}$ a differential equation for $\chi(t)$ is obtained from (3) on the assumption that Ψ, which describes the inertia of temperature distribution in the body, is small. It is thus possible to express the temperature distribution in the body by $u[r,t]\approx T_0(t) + T_1(t)r + T_2(t)r^2$. By substituting this temperature

31952
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B104/B138

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AUTHOR: Pleshanov, A. S.

TITLE: Fusion of centrally symmetric bodies by a heat current with removal of the liquid phase

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 1, 1962, 106-111

TEXT: An approximation method is recommended for determining the motion of the surface of a centrally symmetric body which is fused by an alternating heat current with withdrawal of its liquid phase. The writers proceed from the boundary conditions

$$\lambda u_r[0,\ t]=0,$$
$$\lambda u_r[\chi(t),\ t]-\sigma\rho\frac{d\chi}{dt}=q(t), \qquad (1),$$
$$u[\chi(t),\ t]=\theta=\text{const},$$

where u[r,t] is the temperature that satisfies the heat conduction equation

Card 1/4

Some general inequalities ...

$$a_s < a_s^* \qquad (23)$$

and others (a_T and a_s are respectively the isothermal and adiabatic velocity of sound, the asterisk refers to a fixed composition).

Card 3/3

S/885/62/000/000/004/035
D234/D308

Some general inequalities ...

$$\left(\frac{\partial \ln \mu}{\partial \ln p}\right)_T = \sum_{s,t} \phi_{st} \xi_s \xi_t > 0$$

$$\left(\frac{\partial \ln \mu}{\partial \ln \rho}\right)_T = \sum_{s,t} F_{st} \eta_s \eta_t > 0 \qquad (15)$$

$$\left.\begin{aligned} C_p &> C_p^* \\ C_v &> C_v^* \\ a_T &< a_T^* \end{aligned}\right\} \qquad (22)$$

Card 2/3

S/885/62/000/000/004/035
D234/D308

AUTHOR: Pleshanov, A. S.

TITLE: Some general inequalities of chemical thermodynamics

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Fizicheskaya gazodinamika, teploobmen i termodinamika gazov vysokikh temperatur. Moscow, Izd-vo AN SSSR, 1962, 53-59

TEXT: Using the conditions of chemical equilibrium, the author proves the thermodynamical stability of arbitrary reacting systems of ideal gases and deduces from this fact several general inequalities:

$$\left.\begin{aligned} C_{p_{ch}}/R &= \sum_{s,t} \Phi_{st}\gamma_s\gamma_t > 0 \\ C_{v_{ch}}/R &= \sum_{s,t} F_{st}\delta_s\delta_t > 0 \end{aligned}\right\} \qquad (11)$$

Card 1/3

S/885/62/000/000/003/035
D234/D308

AUTHOR: Pleshanov, A. S.

TITLE: Composition, thermodynamical and gas-dynamical properties of nitrogen at 1000 - 12000°K and 10^{-4} - 10^{3} atm

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Fizicheskaya gazodinamika, teploobmen i termodinamika gazov vysokikh temperatur. Moscow, Izd-vo AN SSSR, 1962, 36-52

TEXT: The author gives tabulated data of normalized molar fractions of components and of the same quantities as given previously for CO_2 (in the same collection, p.15-35), with a graph of p_0 against v_0 (pressure against velocity, before the discontinuity). The data were calculated from thermodynamic functions given in literature. There are 1 figure and 20 tables.

Card 1/1

Composition, thermodynamical and ... S/885/62/000/000/002/035
D234/D308

modynamical functions of the components, taken from literature. Where no spectroscopic data could be found, the authors used approximate calculations. The errors due to various neglects are estimated to be of the order of 0.2%. There is 1 figure and 18 tables.

Card 2/2

S/885/62/000/000/002/035
D234/D308

AUTHORS: Pleshanov, A. S. and Zaytsev, S. G.

TITLE: Composition, thermodynamical and gas-dynamical properties of CO_2 at temperatures of 1000 - 12000°K and at pressures of 10^{-2} - 10^3 atm

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Fizicheskaya, gazodinamika, teploobmen i termodinamika gazov vysokikh temperatur. Moscow, Izd-vo AN SSSR, 1962, 15-35

TEXT: The authors give tabulated values of molar fractions of O_2^-, O^-, C^-, e, CO_2, CO, O_2 etc.; of specific enthalpy, specific internal energy, specific entropy, molecular weight, c_p, c_v, velocity of sound, density; (for 200°, 300° and 400°K only) velocity and Mach number before and after the discontinuity, pressure and density before the discontinuity. A plot of velocity versus pressure before the discontinuity is also given. All data were computed using ther-

Card 1/2

PLESHANOV, A.S.

Some general inequalities of chemical thermodynamics. Dokl. AN SSSR 140 no.6:1372-1375 O '61. (MIRA 14:11)

1. Energeticheskiy institut im. G.M.Krzhizhanovskogo AN SSSR. Predstavleno akademikom V.N.Kondrat'yevym.
(Chemical equilibrium) (Chemistry, Physical and theoretical)

STUPOCHENKO, Ye.V.; SAMUYLOV, Ye.V.; PLESHANOV, A.S.; ROZHDESTVENSKIY, I.B. (Moscow)

Thermodynamic functions of air at high temperatures.
Zhur.fiz.khim. 34 no.6:1265-1274 Je '60.
(MIRA 13:7)

1. Akademiya nauk SSSR, Energeticheskiy institut i Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Air) (High temperatures) (Thermodynamics)

PLESHANOV, A. S., Cand Tech Sci (diss) -- "Some problems of the thermodynamics of air at high temperatures, and the theory of flame propagation". Moscow, 1960. 10 pp (Acad Sci USSR, Power Engineering Inst im G. M. Krzhizhanovskiy), 150 copies (KL,No 12, 1960, 120)

PLESHANOV, A.S.

PHASE I BOOK EXPLOITATION SOV/4467

Predvoditelev, Aleksandr Savvich, Yevgeniy Vladimirovich Stupochenko, Viktor Pavlovich Ionov, Aleksandr Sergeyevich Pleshanov, Igor' Borisovich Rozhdestvenskiy, and Yevgeniy Vasil'yevich Samuylov

Termodinamicheskiye funktsii vozdukha dlya temperatur ot 1000 do 12,000° K i davleniy ot 0,001 do 1000 atm (grafiki funktsiy) (Thermodynamic Functions of the Air for Temperatures From 1,000 to 12,000° K. and Pressures From 0.001 to 1,000 atm. /Graphs of the Functions/) Moscow, Izd-vo AN SSSR, 1960. 53 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agencies: Akademiya nauk SSSR. Energeticheskiy institut imeni G.M. Krzhizhanovskogo; Ministerstvo vysshego obrazovaniya SSSR; Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova. Fizicheskiy fakul'tet.

Resp. Ed.: A.S. Predvoditelev, Corresponding Member, Academy of Sciences USSR.

PURPOSE: This book is intended for scientists and engineers concerned with thermodynamic air functions.

PLESHANOV, A.S.

Mathematical theory of the normal rate of flame propagation. Inzh.-fiz. zhur. no.11:73-77 N '59 (MIRA 13:3)

1. Energeticheskiy institut im. G.M. Krzhizhanovskogo, Moskva. (Flame)

05272

SOV/170-59-7-3/25

On the Solution of the Boundary Problem in the Theory of Normal Speed of Flame Propagation

tions of λ_* are given by Formulae (19) and (20). Then the author develops the method of expansion over the parameter λ and the method of successive approximations applicable to the solution of Equation 3 being the modified Equation 1 in which a new variable $p = dy/dx$ is introduced. Expressions for the coefficients of the expansion series are given by Formulae 28, 29 and 30. N.S. Piskunov gave valuable remarks in discussing the results of this investigation.
There are 5 Soviet references.

ASSOCIATION: Energeticheskiy institut im.G.M. Krzhizhanovskogo (Power Engineering Institute imeni G.M. Krzhizhanovskiy), Moscow.

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05272

24(8)

AUTHOR: Pleshanov, A.S.

TITLE: On the Solution of the Boundary Problem in the Theory of Normal Speed of Flame Propagation

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 7, pp 13 - 19 (USSR)

ABSTRACT: The problem to be solved consists in determining the value of λ, a parameter corresponding to the normal speed of flame propagation, in the equation:

$$y'' - \lambda y' \psi(y) = 0$$

which satisfies the boundary conditions:

$$y(-\infty) = y'(-\infty) = 0; \quad y(\infty) = 1; \quad y'(\infty) = 0.$$

There are 2 classes of solutions, the first of which is physically meaningful, as the problem is solved uniquely. The value of $\lambda = \lambda_*$ corresponds to the case of the first-class solution. The best estimate of λ_* can be obtained by solving a variational problem by the Ritz method. The expression for the functional of the variational problem is given by formula (1.1).

Card 1/2 The author applies Ritz' method for two simplest cases in order to obtain

24.5100

AUTHOR: Pleshanov, A. S.

S/170/59/002/11/010/024
B014/B014

TITLE: On the Mathematical Theory of the Normal Velocity of Propagation of a Flame

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Vol 2, Nr 11, pp 73-77 (USSR)

ABSTRACT: By way of introduction the author points out that the normal propagation velocity of a flame is low compared to the velocity of sound, and that pressure changes, viscosity, thermal diffusion, and diffusion heat conduction are therefore negligible. A set of differential equations, (2) - (3), is written down, which describes the heat- and mass transfer. For the case in which the parameter $\varepsilon \neq 1$, the boundary problem is given by (6), (7), and (8). Equation (11) which satisfies the boundary condition (12), is obtained for the propagation velocity of the flame. Assuming that a solution of the boundary problem (7) - (8) for a certain ε be known, one obtains an approximate solution for the propagation velocity of the flame for some specific ε by way of successive approximation. Next, equation (13) which also gives the propagation velocity, is written down, and it is noted that the two sets of equations (6) - (11) and (7) - (13) are equivalent. The author discusses and exemplifies the numerical computation of the solution of the

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Heat Power Engineering, Nr 1 SOV/3070

Pleshanov, A. S. Application of the Method of Indeterminate Coefficients to the Solution of Nonlinear Problems of Mathematical Physics 131

The aim of the author is to obtain arbitrary fragments of an analytical representation of a precise solution of nonlinear problems of several classes. In his work he uses the method of indeterminate coefficients.

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3-15-60

nonlinear problems of mathematical physics. There is also an article describing processes occuring in the steam boiler of a solar heat energy station. References appear at the end of each article.

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PLESHANOV, A.S.

24(8) P.B PHASE I BOOK EXPLOITATION SOV/3070

Akademiya nauk SSSR. Energeticheskiy institut imeni G. M. Krzhizhanovskiy

Teploenergetika, vyp. 1 (Heat Power Engineering, Nr 1) Moscow, Izd-vo AN SSSR, 1959. 143 p. Errata slip inserted. No. of copies printed not given.

Ed. of Publishing House: V. A. Kotov; Tech. Ed.: Yu. V. Rylina; Editorial Board: V. A. Baum, Doctor of Technical Sciences, Professor (Resp. Ed.); G. Ye. Kholodovskiy, Doctor of Technical Sciences; N. I. Yushchenkova, Candidate of Technical Sciences; Z. L. Miropol'skiy, Candidate of Technical Sciences (Secretary); and S. G. Poyarkov, Candidate of Technical Sciences.

PURPOSE: This work is intended for scientists and engineers working in the field of steam boilers.

COVERAGE: This is a collection of 9 articles on the circulation of water and water-vapor mixture in boilers, bubbling processes, pulsation of pressure, temperature fields in combustion chambers, radiation heat transfer between gray bodies, and the solution of

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PREDVODITELEV, Aleksandr Savvich; STUPOCHENKO, Yevgeniy Vladimirovich, prof.; ROZHDESTVENSKIY, Igor' Borisovich; SAMUYLOV, Yevgeniy Vasil'yevich; PLESHANOV, Aleksandr Sergeyevich

[Tables of aerodynamic and thermodynamic values of a stream of air behind a direct shock wave] Tablitsy gazodinamicheskikh i termodinamicheskikh velichin potoka vozdukha za priamym skachkom uplotneniia. Moskva, Izd-vo Akad.nauk SSSR, 1959. 77 p.
(MIRA 14:2)

1. Chlen-korrespondent AN SSSR (for Predvoditelev). 2. Laboratoriya fiziki goreniya Energeticheskogo instituta AN SSSR (for Stupochenko, Rozhdestvenskiy, Samuylov, Pleshanov).
(Shock waves)

L 00818-67 EWT(m)/EWP(j) WW/JW/GD/RM

ACC NR: AT6022655 SOURCE CODE: UR/0000/66/000/000/0139/0140

AUTHOR: Fleshanov, A. S.

ORG: none

TITLE: Some general inequalities of chemical thermodynamics in the case of partial equilibrium

SOURCE: AN SSSR. Energeticheskiy institut. Issledovaniya po fizicheskoy gazodinamike (Studies of physical gas dynamics). Moscow, Izd-vo Nauka, 1966, 139-140

TOPIC TAGS: chemical equilibrium, thermodynamics

ABSTRACT: Earlier, the author had demonstrated the validity of the following general inequalities of chemical thermodynamics:

$$c_{p_0} > c_{p_\infty}, \quad c_{v_0} > c_{v_\infty};$$

$$\left(\frac{\partial \ln \mu}{\partial \ln \rho}\right)_{T_0} > \left(\frac{\partial \ln \mu}{\partial \ln \rho}\right)_{T_\infty} = 0, \quad \left(\frac{\partial \ln \mu}{\partial \ln \rho}\right)_{T_0} > \left(\frac{\partial \ln \mu}{\partial \ln \rho}\right)_{T_\infty} = 0;$$

$$a_{T_0} < a_{T_\infty}, \quad a_{s_0} < a_{s_\infty} \qquad (1)$$

where c_p and c_v are the molar heat capacities at constant pressure p or volume respec-

Card 1/2

SUB CODE:

Card 2/2

BOGATYREV, Yu.M.; PLESHACHKOVA, V.P.

Cooling media for induction hardening of steel Metalloved. i obr. met. no.11:54-63 N '56. (MLRA 10:1)

1. TSentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya.
(Steel--Hardening)

VASHUROVA, T.A., inzh.; PLESHACHKOVA, V.P., inzh.

Induction heat treatment of overhead crane parts. [Trudy] TSNIITMASH 89:30-41 '59. (MIRA 12:4)
(Case hardening) (Induction heating)

Electric Heat Treatment (Cont.)

SOV/1891

Card 6/8

Electric Heat Treatment (Cont.)

water by oil, and by other milder cooling agents, and the effect of the duration and the temperature of annealing are also discussed.

Klimochkin, M.M., Engineer. Surface Hardening of Nodular Cast Iron 87
The author presents the results of investigations on nodular cast iron heated for hardening by high frequency (300,000 to 350,000 cycles) current. He describes the structure and hardness of the surface, wear resistance, fatigue strength, and resistance to crack formation, and gives recommendations as to how to meet all these quality requirements.

Bogatyrev, Yu.M., and S.M. Gamazkov, Candidates of Technical Sciences. 116
Electric Tempering of Surface-hardened Parts by Sectional Heating
The article deals with the following: distribution of temperature along and across specimens during electrical heating, the hardness of specimens after surface hardening and induction tempering, the structure of the hardened layer, and the residual stresses in it. The author compares the data obtained with results from the common method of heating specimens in a furnace and he stresses the pronounced advantages of induction heating.

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Electric Heat Treatment (Cont.)

Electric Heat Treatment (Cont.)

metals, and development of new equipment and modernizing old types of equipment and apparatus.

Bogatyrev, Yu.M., Candidate of Technical Sciences, and Ye.I. Rumyantseva, Engineer. Industrial Applications of Induction Heating Abroad 17

Based on available non-Soviet literature on induction heating, the authors survey various applications of induction heating outside the USSR. They describe the use of induction heating in the surface hardening of metals, in heat-treating welded joints, and in metal forging. In the conclusion it is stated that although induction-heating equipment is discussed in non-Soviet literature, there is a lack of information on the physical metallurgy of the electric heat-treating process.

Vashmova, T.A., and V.P. Pleshachkova, Engineers. Induction Heat Treatment of Bridge Crane Parts 30

The induction heat treatment of wheels, brake drums, and toothed sleeves of a 5-ton capacity bridge crane is described. The equipment used, and the regimes of heating, quenching, tempering, and data on deformation are given. This method is successfully used at the "Stal'most" Crane Building Plant.

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and industrial-frequency heating and electrospark hardening of machine parts. The process of surface hardening, through hardening and tempering of steel and cast iron using induction-heating and electrospark methods, and the results of investigation of the effects of electric-heat treatment and electrospark hardening on the properties of steel and cast iron are described. A brief review of industrial applications of induction heating outside the Soviet Union are also presented. Various electric-heating and electrospark hardening equipment developed by TsNIITMash are described. The book was written for the 20th anniversary of the scientific research work of TsNIITMash, Department of Electric Heating.

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25(1) PHASE I BOOK EXPLOITATION SOV/1891

Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya

Elektrotermicheskaya obrabotka i elektroiskrovoye uprochneniye detaley; [sbornik] (Electric Heat Treatment and Electrospark Hardening of Parts; Collection of Articles) Moscow, Mashgiz, 1958. 214 p. (Series: Its: [Trudy] kn. 89) Errata slip inserted. 5,600 copies printed.

Ed.: I.Yu. Miloslavskiy, Engineer (Deceased); Ed. of Publishing House: I. Yu. Geller; Tech. Ed.: A. F. Uvarova; Managing Ed. for Literature on General Technical and Transport Machine Building (Mashgiz): K.A. Ponomareva, Engineer.

PURPOSE: This collection of articles is intended for engineering staffs of plants and scientific research institutes dealing with electric heating, electric heat-treatment, and electrospark hardening of metals.

COVERAGE: This collection of articles presents the results of scientific research work carried out by the Department of TsNIITMash (Central Scientific Research Institute of Technology and Machinery) on electric heating in the field of high

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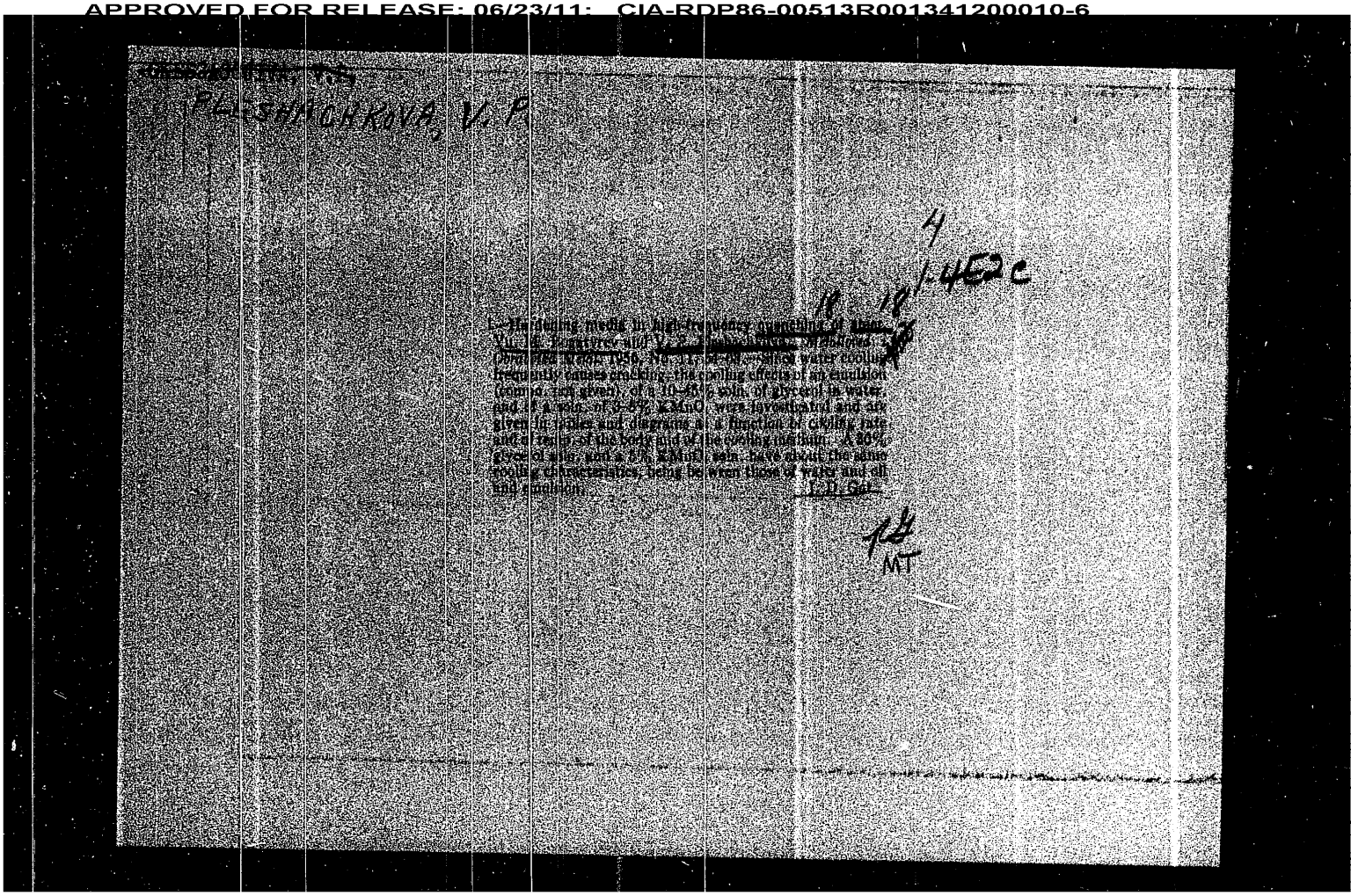


PLESHKOVA, T.V.

Studying retardation in hysterical neurosis. Trudy Inst.fiziol. 5: 307-316 '56. (MLRA 10:1)

1. Laboratoriya fiziologii i patologii vysshey nervnoy deyatel'nosti Zaveduyushchiy - P.P.Mayorov.
(HYSTERIA) (CONDITIONED RESPONSE)

PLESHCHINSKIY, B.I.

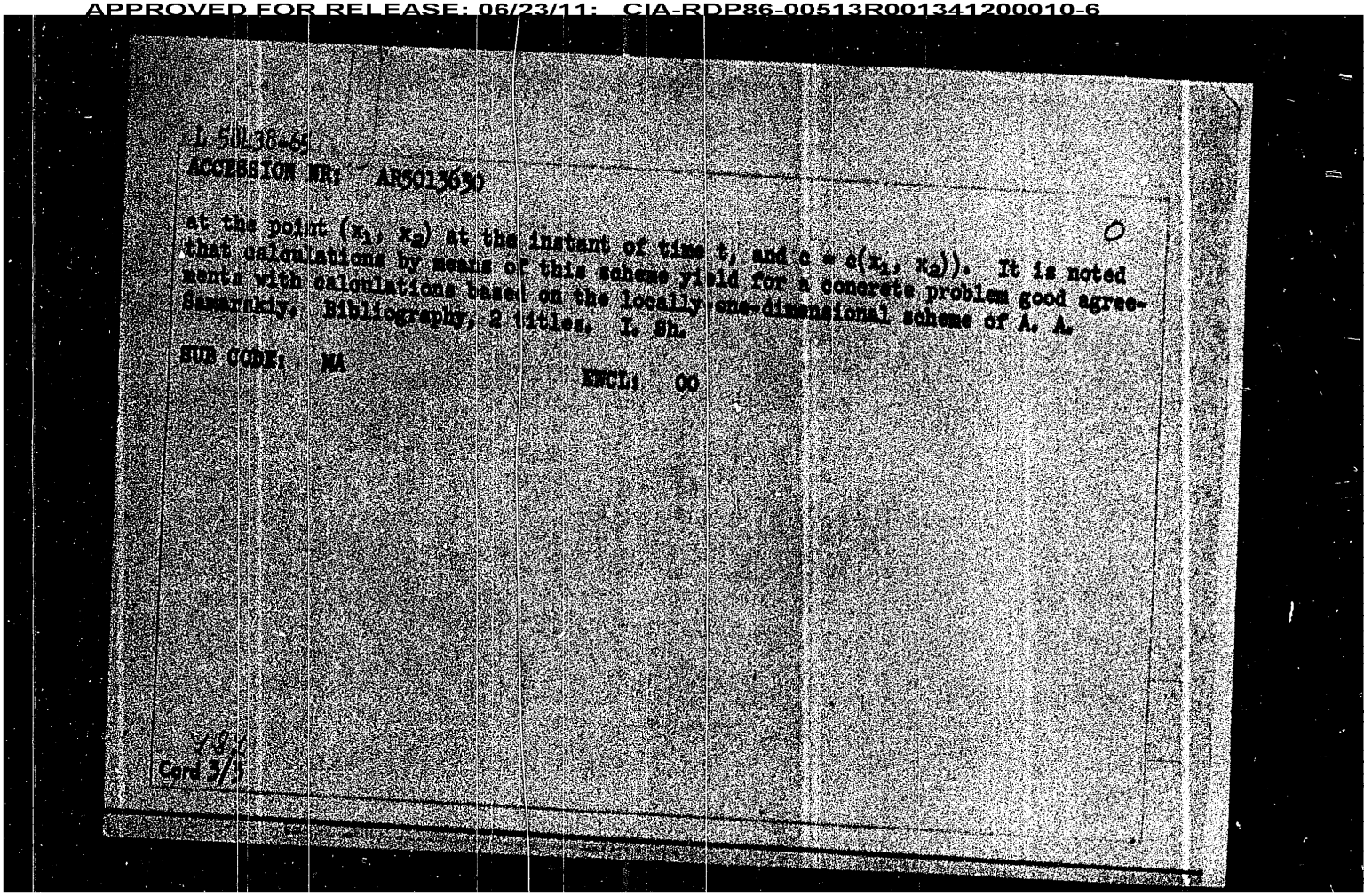
BULYGIN, V.Ya., PLESHCHINSKIY, B.I.

Modelling the displacement of petroleum by edge water. Uch.zap. Kaz.un. 116 no.5:41-44 '56. (MLRA 10:4)

1. Kafedra mekhaniki.
(Oil fields--Electromechanical analogies)

PLESHAKOVA, L.M. (Novosibirsk); PRYAZHINSKAYA, V.G. (Novosibirsk)

Some methods for the numerical solution of a problem involving spatial nonsteady percolation. PMTF no.2:141-142 Mr-Ap '65. (MIRA 18:7)



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at the point (x_1, x_2) at the instant of time t, and $c = c(x_1, x_2)$. It is noted that calculations by means of this scheme yield for a concrete problem good agreements with calculations based on the locally one-dimensional scheme of A. A. Samarskiy. Bibliography, 2 titles. I. Sh.

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where Γ is the boundary of the region in which x_1 and x_2 are defined. It is indicated that for nonlinear equations of type (1) it is convenient to use a computational scheme in the form

$$\frac{u^{n+1/2}-u^n}{\tau}=\Lambda_1 u^{n+1/2}+\Lambda_2 u^n,$$

$$\frac{u^{n+1}-u^{n+1/2}}{\tau}=\Lambda_2 u^{n+1}-\Lambda_2 u^n,$$

where τ is the time interval, while Λ_i ($i = 1, 2$) and $u(x_1, x_2, n\tau) = u^n$ are respectively a difference operator and a function, which approximate the function and differential operator

$$L_i=\frac{\partial}{\partial x_i}\left[M(x_1, x_2, t, h)\frac{\partial h}{\partial x_i}\right].$$

The stability of the system was checked in practice. A difference scheme is presented, relating the value of the function u on the n-th and $(n + 1)$-st time layers. This scheme results from problem (1)--(2) as applied to unsteady filtration in a porous medium when $M(x_1, x_2, t, h) = ch(x_1, x_2, t)$ (h--pressure of the ground water

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ACCESSION NR: AP5013630 UR/0044/65/000/004/B126/B128
518:517.944/.947

SOURCE: Ref. zh. Matematika, Abs. 4B629

AUTHORS: Pleshakova, L. M.; Pryazhinskaya, V. G.

TITLE: Concerning a numberical solution of some nonlinear parabolic equations

CITED SOURCE: Dokl. 3-y Sibirsk. konferentsii po matem. i mekhan., 1964. Tomsk, Tomskiy un-t, 1964, 146-147

TOPIC TAGS: parabolic equation, boundary value problem, nonlinear equation, numerical solution, filtration problem

TRANSLATION: The boundary value problem is considered for an equation of the type

$$\frac{\partial k}{\partial t} = \sum_{i=1}^{2} \frac{\partial}{\partial x_i} \left[M(x_1, x_2, t, k) \frac{\partial k}{\partial x_i} \right] + f(x_1, x_2, t, k) \quad (1)$$

in the domain

$$D(0 < x_1 < a, 0 < x_2 < b), \ 0 < t < T$$

under the conditions

$$k(x_1, x_2, 0) = \mu_3(x_1, x_2),$$

$$k(x_1, x_2, t)|_\Gamma = \mu_2(x_1, x_2, t), \quad (2)$$

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PLESHAKOV, V.T.

Route of pulmonary blood drainage following ligation of the pulmonary vein [with summary in English]. Vest.khir. 82 no.1: 106-115 Ja '59. (MIRA 12:2)

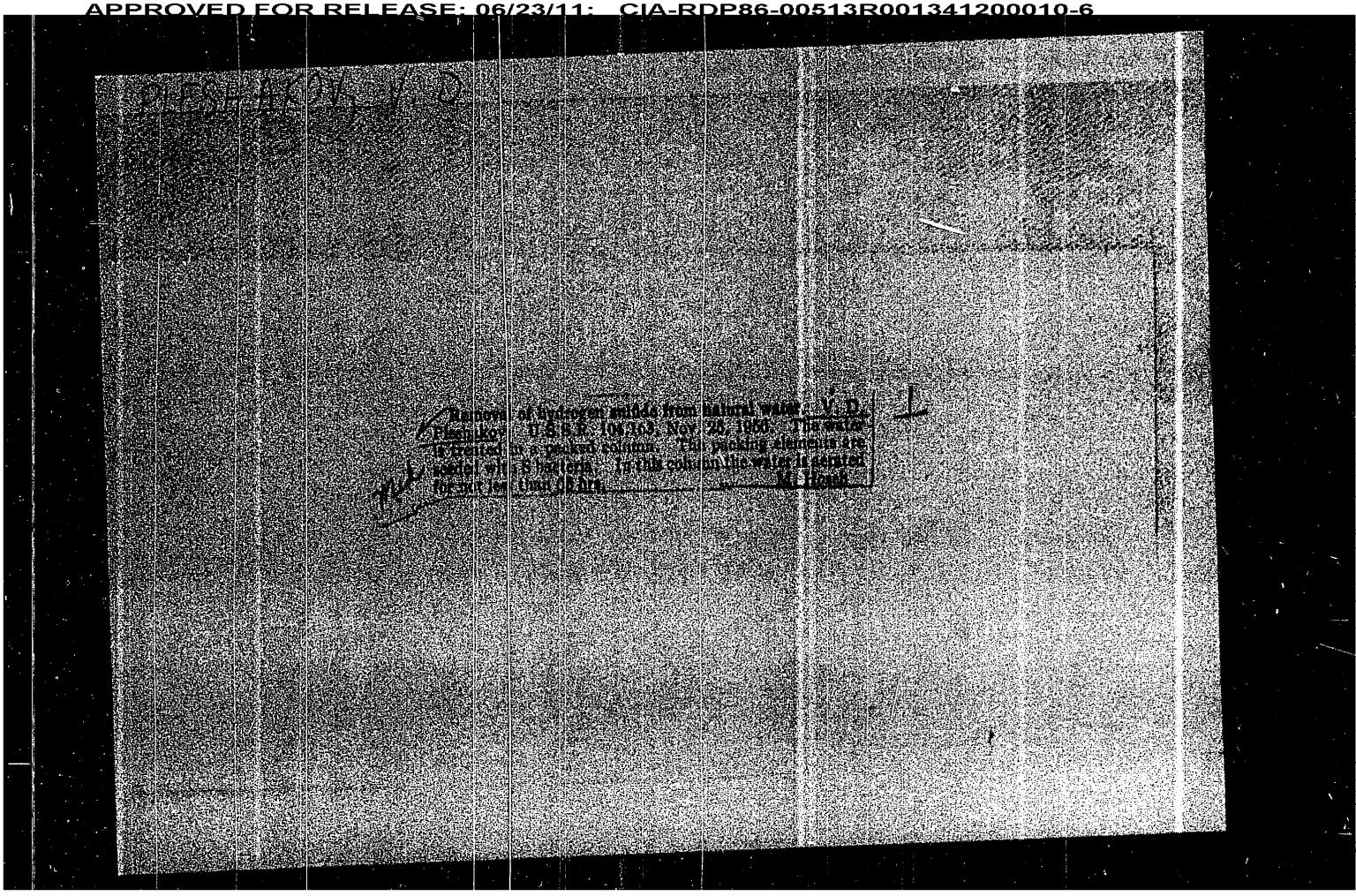
1. Iz kafedry operativnoy khirurgii (nach. - prof. A.N. Maksimenkov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova. Adres avtora: Leningrad, ul. Lebedeva, 37, kafedra operativnoy khirurgii.

(VEIN, PULMONARY, physiol.
drain. of pulm. blood after venous ligation, cadaver study (Rus))

PLESHAKOV, V. N., Cand Agr Sci -- (diss) "State and perspectives of the development of potato-growing under conditions of the northern part of the Volga-Aktyubinsk bottomlands (Stalingradskaya Oblast')." Kotel'nikovo, 1956. 16 pp (Min of Higher Education USSR, Stalingrad Agr Inst), 115 copies (KL, 15-58, 117)

PLESHAKOV, Vasiliy Dmitriyevich, kandidat tekhnicheskikh nauk; KOGAN, A.S., redaktor; SOKOL'SKIY, I.F., redaktor izdatel'stva; KONYASHINA, A., tekhnicheskiy redaktor

[Removing hydrogen sulphide from artesian water] Udalenie serovodoroda iz artezianskikh vod. Moskva, Izd-vo Ministerstva kommunal'nogo khoziaistva RSFSR, 1956. 36 p. (MLRA 9:9)
(Artesian wells) (Hydrogen sulphide)



PLESHAKOV, S.

Tasks in improving operational accounting work. Den. i kred. 16 no.3:15-24 Mr '58. (MIRA 11:5)
(Banks and banking--Accounting)

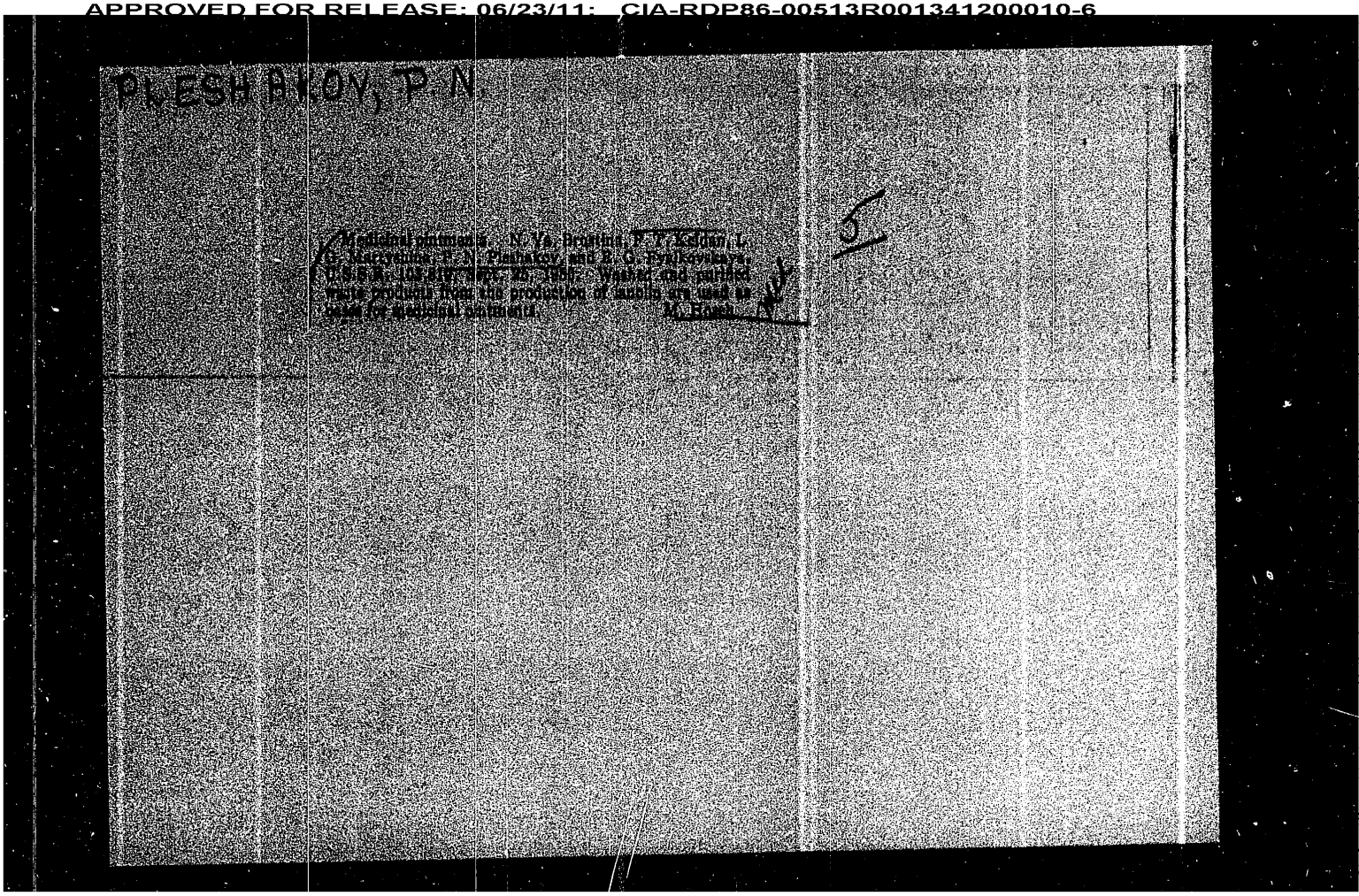
SHCHELOKOV, Vasiliy Vasil'yevich; PLESHAKOV, S., otv. red.; BORULYA, A., red. izd-va; LEBEDEV, A., tekhn. red.

[Collection of problems in accounting and operating technique in the State Bank] Sbornik zadach po uchetu i operatsionnoi tekhnike v Gosbanke. Izd.2., dop. i perer. Moskva, Gosfinizdat, 1962. 199 p. (MIRA 15:6)

(Banks and banking--Accounting)

DENISOV, Ivan Petrovich; MIROSHNICHENKO, Yakov Pavlovich; PLESHAKOV, S., red.; LEBEDEV, A., tekhn.red.

[Mechanization of accounting in State Bank institutions of the Ukraine] Mekhanizatsiia ucheta v uchrezhdeniiakh Gosbanka na Ukraine. Moskva, Gosfinizdat, 1959. 38 p. (MIRA 12:12)
(Ukraine--Banks and banking--Accounting)
(Machine accounting)



PLESHAKOV, P.A., inzh.

Overall mechanization of the loading and unloading of packed goods. Mekh. i avt. proizv. 18 no.8:37-38 Ag '64. (MIRA 17:10)

PLESHAKOV, Leonid Petrovich; DEREVYANKINA, L.A., red.; MARTYNOVA, V.A., mlad. red.

[Around the world on the "Zaria"] Vokrug sveta s "Zarei." Moskva, Mysl', 1965. 230 p. (MIRA 18:6)

KRYLOV, Vladimir Fedorovich, inzh.; PLESHAKOV, Grigoriy Yakovlevich, kand.tekhn.nauk; VOROB'YEV, Boris Mikhaylovich, kand.tekhn.nauk; ZHUKOV, V.V., otv.red.; SHKLYAR, S.Ya., tekhn.red.

[Working thick sloping coal seams] Iz opyta razrabotki moshchnykh pologikh plastov. Moskva, Ugletekhizdat, 1959. 165 p.
(MIRA 12:12)

(Coal mines and mining)

10(2) PHASE I BOOK EXPLOITATION SOV/2162

Akademiya nauk SSSR. Energeticheskiy institut.

Fizicheskaya gazodinamika (Physical Gas Dynamics) Moscow, 1959. 167 p. 3,000 copies printed.

Resp. Ed.: A.S. Predvoditelev, Corresponding Member, USSR Academy of Sciences; Ed. of Publishing House: R.I. Kosykh; Tech. Ed.: Ye. V. Makuni.

PURPOSE: This collection of articles is intended for scientific workers, instructors, engineers, and advanced vuz students specializing in the field of gas dynamics and the physics of combustion.

COVERAGE: This collection of articles is concerned with the results of work performed at the Power Institute, Academy of Sciences, USSR, during the years 1952-1955. Problems of gas dynamics and thermodynamic properties of air at high temperatures (up to 12,000° K) in a wide range of pressures from 0.001 to 1,000 atm. are discussed. Methods are presented for calculating a normal shock wave. consideration of the dissociation and ionization of air. Some of the papers of the collection deal with hydrodynamic phenomena associated with electric discharges in water. References follow most of the papers.

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the tables in the present volume, including a general analysis of the problem, the solution of a number of theoretical questions arising in the thermodynamics of gases at high temperatures, the development of the method of computation and the computation formulas, the programming for the electronic computer, and the actual computation on the machine, were carried out by a group of coworkers of the combustion-physics laboratory and the molecular physics department of the Physics Faculty, consisting of Professor Ye. V. Stupochenko (leader of the group), Ye. V. Samuylov, I. P. Stakhanov, A. S. Pleshanov, and I. B. Rozhdestvenskiy. A large part of the total computations was performed on a high-speed electronic computer of the Computer Center, Academy of Sciences, USSR. Checking the tables and readying them for printing were carried out there under the supervision of L. S. Bark. Some control, intermediate, and auxiliary computations were performed at the Pervaya Moskovskaya fabrika mekhanizirovannogo scheta (First Moscow Computing Machine Factory). There are 14 references, of which 12 are English, 1 is Soviet, and 1 French.

PURPOSE: This book is intended for thermodynamicists, engineers and others working in the field of heat exchange and gas and thermodynamics.

COVERAGE: The tables presented in this book form part of the research on the properties of gases at high temperatures conducted under the general direction of Corresponding Member of the USSR Academy of Sciences Professor A. S. Predvoditelev in the combustion physics laboratory of the Energeticheskiy institut (Power Institute of the Academy of Sciences, and in the molecular physics department of the Physics Faculty of Moskovskiy gosudarstvennyy universitet (Moscow State University). Up to the present time, the staff of the laboratory and the department have compiled tables of thermodynamic functions of air for temperatures form 1000° to 20,000° K, and also tables of the gas-dynamic and thermodynamic values of the air stream behind a straight compression shock and at the surface of a cone for approach-flow speeds up to 15,500 m. sec. The tables of thermodynamic functions of air for temperatures from 6000° to 12,000° K are the first volume of the above mentioned series of tables. The entire work of compiling